COLLIDER-ACCELERATOR DEPARTMENT

Title: EMS Training For C-A Cooling Water Systems

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Group: ESH&Q

Approvals

Signature on File Date:

ESH&Q Division Head

Signature on File Date:

Collider-Accelerator Department Chairman

(Indicate additional signatures)

Y	N		
☐	x	FS Representative:	Date:
☐	x	Radiological Control Coordinator:	Date:
☐	x	Chief ME:	Date:
☐	x	Chief EE:	Date:
☐	x	Environmental/P2 Coordinator:	Date:
☐	x	QA Manager:	Date:
x	☐	Other: *Signature on File*	Date:

Environmental Training Package for Cooling Water Systems

This package has been designed to aid in the delivery of required job-specific training for the following Cooling Water Systems activities identified in the environmental process assessment:

- Radioactive Waste generation
- Liquid Discharges
- Water Consumption
- Storage/Use of Chemicals
- Storage/Use of Radioactive materials
- Atmospheric Discharges

Your position has been determined to have a potential significant impact to the environment. Thus, C-A Department Management has prepared the questions & answers on the following pages for your specific work/processes.

This environmental material is incorporated into your current job and procedure training. If you have specific questions about this information after you read the material, contact the C-A Department ESH&Q Division Head, Ray Karol (mailto:rck@bnl.gov).

You may keep this material as a handout and use it as a reference aid.

This specific training course is linked to your job-training assessment (JTA). You must read and acknowledge this material as part of the qualification to perform cooling water system maintenance. Please fill out the Read and Acknowledgement form and return it promptly.

Read & Acknowledgement Form

Environmental Process Evaluation Title: Cooling Water Systems

Environmental Aspects: Radioactive Waste, Liquid Discharges, Water Consumption, Storage/Use of Chemicals, Atmospheric Discharges, Storage/Use of Radioactive Materials

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Course Objective: Because your work activities have been identified as having a potential significant impact to the environment, this course has been designed to provide you with the job-specific information that you must know to protect the environment.

1) What potential impacts to the environment are associated with your activities?

- Radioactive wastes are generated
- Regulated chemicals are discharged to recharge basins
- Radioactive vapors are released to the atmosphere from cooling towers
- Spills from certain coolant systems could result in the release of radioactive material

2) What consequences may result if your operations were to impact the environment?

- Radioactive waste mismanagement could contaminate the environment and incur regulatory penalties.
- Improper water discharges to the recharge basins or sanitary sewer system could contaminate groundwater and/or result in a violation of the BNL State Pollutant Discharge Elimination (SPDES) permit.
- In the event of a pressure drop, malfunctioning cross-connection controls could permit uncontaminated site water systems to receive radioactive contaminants.
- Water spills from radioactive cooling systems could contaminate local groundwater.
- Unmonitored atmospheric discharges could contaminate the environment, create public radiation exposures, and/or violate federal Clean Air Act regulations.
- Failure to inspect secondary containment, or respond to leak detection alarms, or low/hi level alarms could result in spills that could contaminate groundwater.
- Improper release of radioactive materials to uncontrolled areas may result in enforcement actions under Federal Rule 10CFR835.
- Improper handling of waste can create loss of regulator and public trust.

3) What benefits or positive effects would you notice with improved environmental performance?

- Safer, cleaner workplace
- Clear roles and responsibilities
- Improved relationship with regulators and the public
- Control of disposal costs
- Reduced emissions

4) What role and responsibility do you have for these potential impacts and environmental performance?

- To ensure radioactive wastes are handled according to C-A procedures
- To ensure alarms and other controls are tested as required
- To take action when alarms sound or when controls fail
- To report unexpected water releases
- To create and keep appropriate records relative to operational controls
- To contact supervision if unsure of how to perform the work or if the procedures are unclear or incorrect

5) What controls or procedures are implemented to reduce the potential for emergency?

- Secondary containment
- Hi / low level alarms
- Leak detection systems
- Weekly system monitoring by Drew Industrial Division of Ashland Chemical
- Monthly effluent monitoring/reporting
- Inspections of chemical storage/feed systems
- C-A OPM 8.20, Handling and Disposing of Hazardous Waste
- C-A OPM 8.22, Handling and Disposal of Non-Hazardous and Recyclable Solid Waste
- C-A OPM 8.20.1, C-A Hazardous Waste Collection Station
- C-A OPM 8.20.2, Radioactive Waste Disposal
- C-A OPM 8.18.1, General Water Treatment
- C-A OPM 8.18.1.a**,** Water Treatment Services Agreement with Drew Industrial Division of Ashland Chemical
- C-A OPM 8.18.4, RHIC Deionizer Handling Procedure
- C-A OPM 8.31.c, Deionizer Maintenance
- C-A OPM 8.31.e, Draining and Filling Systems Checklist
- C-A OPM 8.31.f, Water Transfer Checklist
- C-A OPM 8.32, Procedure for Logging Water Makeup to Cooling Systems
- C-A OPM 8.32.a, Water Systems Makeup Checklist
- C-A OPM 2.28, Enhanced Work Planning (C-A version of ES&H Std. 1.3.6)

6) How would you respond in an emergency to reduce the potential for environmental impact and what actions could be taken to mitigate the event?

- See C-A OPM 3.0, Local Emergency Plan for the C-A Department
- See C-A OPM 10.2, Response To Tritiated Water Spills
- See C-A OPM 10.1.d, Operator Response to C-A Water Spills
- Call Spill Response Hotline – X2222 or 911 (if calling from a cell phone, dial (631) 344-2222)

7) What pollution prevention and waste minimization techniques have been or could be considered to reduce or eliminate the potential to impact the environment?

- Chemical use in cooling tower water could be eliminated if the ozone system used in the BRAHMS cooling tower systems is proved effective.
- A water conservation assessment for discharged cooling water from the AGS cooling water systems including reuse of the mix/waste tank could be conducted.
- To drain and dispose of water from highly activated systems when no longer used or inoperable for extended periods

Suggestions or comments about pollution prevention or waste minimization are always welcome by C-A management.

8) Are there any key Environmental-specific Competency Requirements for this position?

- None

Additional Environmental Information:

Click on the items below to learn more about C-A Cooling Water Operations Operations.

- Process Assessment for AGS Cooling Water Operations
- Process Assessment for RHIC Cooling Water Operations
- Environmental Management Program for C-A Cooling Water Operations Operations
- Operational Control Form for AGS Cooling Water Operations
- Operational Control Form for RHIC Cooling Water Operations